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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/569,955

02/28/2006

Richard Avedikian

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466

7590

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EXAMINER

HOBAN, MATTHEW E

ART UNIT

PAPER NUMBER

4116

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/569,955	<b>Applicant(s)</b> AVEDIKIAN ET AL.	
	<b>Examiner</b> Matthew E. Hoban	<b>Art Unit</b> 4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/28/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Status***

Claims 16-29 are pending and presented for examination

Claims 1-15 have been cancelled.

### ***Information Disclosure Statement***

1. The information disclosure statement filed 2/28/2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Specification***

1. Applicant is reminded of the proper content of an Abstract of the Disclosure.

In chemical patent abstracts for compounds or compositions, the general nature of the compound or composition should be given as well as its use, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

Please alter the ranges as recited in the abstract to truly reflect the ranges as disclosed. Currently "<" and ">" operators are replaced by the "=", which makes the language of the abstract unclear. Correction is required.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 16-25 and 28 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Raine et al in 3,353,976.

The instant claims are directed towards a green part having the following average mineral chemical composition, in percentage by weight on the basis of the mineral oxides (ranges from claims 17 and 18):

Alumina 40-94%

Zirconia 0-41%

Silica 3%-22%

and  $Y_2O_3 + V_2O_5 + TiO_2 + Sb_2O + Yb_2O_3 + Na_2O > 1\%$  (Referred to as ADDITIVE)

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Claims 19-25 further define the components, which make up the additive.

Lastly, claim 29 is directed to a process of making a refractory product from the composition as defined by claim 16.

Raine et al teach the composition of a synthetic bauxite green body, which is later made into a refractory brick.. The composition of the green body, after synthesis, was found to be 89.1%  $\text{Al}_2\text{O}_3$ , 6.2%  $\text{SiO}_2$ , 3.2%  $\text{TiO}_2$  and 1.5 %  $\text{FeO}_3$  by weight. This specific example represents a species of the range as claimed by claims 16-25 of the instant application (see Column 2, Lines 68-70). This is because:

In relation to claim 16-17:

The amounts of titania, alumina, zirconia (0%) and additive ( $\text{TiO}_2$ ) in Raine's example fall within the ranges recited by the instant application

In relation to claim 18:

The amount of silica in Raine's invention is 6.2%, which is greater than 3%, as required by the instant claim

In relation to claim 19:

The amount of titania in Raine's invention is 3.2%, which is greater than 2%, as required by the instant claim.

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Claims 20-22 are directed to further limiting the additives in the composition and refer to a summation of the components of the additive (ie,  $\Sigma(Y_2O_3 + V_2O_5 + TiO_2 + Sb_2O_3 + Yb_2O_3 + Na_2O)$ ). In the case of Raine all components in this sum are 0, aside from Titania.

In relation to claim 20:

The summation of the additives in Raine's invention is 3.2%, which is less than 5% as required by the instant claim.

In relation to claim 21-22:

The summation of the additives in Raine's invention is 3.2%, which is greater than 3% as required by the instant claims.

Claims 23-25 are directed to further limiting the additives in the composition and refer to the wt% of an individual oxide, which is included in the additive (ie,  $Y_2O_3$  or  $V_2O_5$  or  $TiO_2$  or  $Sb_2O_3$  or  $Yb_2O_3$  or  $Na_2O$ ). In the case of Raine, the individual oxide included in the group of additives is titania.

In relation to claim 23-25:

The amount of one of the individual species of additives in Raine's invention (titania) is 3.2%, which is greater than 3% as required by the instant claims

In relation to claim 29:

Raines further speaks of the synthesis of the synthetic bauxite, which was produced. This process included the steps of mixing alumina hydrate, volatilized silica, titania, and iron oxide. The mixture was then compacted at a raised temperature and

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subsequently fired at 2900 degrees Fahrenheit (See Column 2, Lines 64-66). The products made from this process were refractory bricks (refractory products) (See Column 3, Lines 25-39).

3. Claims 16-18, 20, 23 and 29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Brashear et al in 4,119,472.

For an explanation of the instant claims please see the preceding rejection. The invention of Brashear teaches a green part with the following composition (See Column 5, Sample F, which bears reference to the composition of AZS-1 in Column 3):

49.6%  $\text{Al}_2\text{O}_3$

15.2%  $\text{SiO}_2$

.1%  $\text{TiO}_2$

.1%  $\text{FeO}_3$

33.5%  $\text{ZrO}_2$

1.5  $\text{Na}_2\text{O}$

The above composition directly reads on claims 16-17, as it is a species of the ranges as recited by the instant claims. Furthermore, the composition of

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Brashear has over 3% silica (Relevant to claim 18) and 1.5% soda, which is less than 5% but greater than 1% of an individual constituent of the additive. This means that the composition of Brashear would further read on claims 20 and 23. The composition of Brashear is subsequently pressed and fired into refractory shapes (See Column 4, Example 1).

4. Claims 16-18, 20, 23 and 29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Guigonis et al in 4.308067.

For an explanation of the instant claims please see the preceding rejection. The invention of Guigonis teaches a green part with the following composition (See Column 5, Composition A, which bears reference to the composition of Product No. 1 in Column 2):

49.53%  $\text{Al}_2\text{O}_3$

15.37%  $\text{SiO}_2$

.098%  $\text{TiO}_2$

.098%  $\text{FeO}_3$

31.81%  $\text{ZrO}_2$

1.08  $\text{Na}_2\text{O}$



The above composition directly reads on claims 16-17, as it is a species of the ranges as recited by the instant claims. Furthermore, the composition of Guigonis has over 3% silica (Relevant to claim 18) and 1.08% soda, which is less than 5% but greater than 1% of an individual constituent of the additive. This means that the composition of Guigonis would further read on claims 20 and 23. The composition of Guigonis is subsequently shaped and fired into refractory shapes (See Column 5, Example 1).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 16 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenflanz et al in 7,101,819 in view of Raine et al in 3,353,976.

The instant claims are directed towards a green part having the following average mineral chemical composition, in percentage by weight on the basis of the mineral oxides:

Alumina >40%

Zirconia 0-41%

Silica 2%-22%

and  $Y_2O_3$  > 3%

Rosenflanz et al teaches particles of composition in the following weight percents (See Column 42, Example 31):

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Alumina= 50.3%

Zirconia= 17.8%

Silica= 2.25%

$Y_2O_3$ = 27.4%

The above composition directly reads on the composition as claimed by the instant claims 26-28; however, Rosenflanz does not directly teach the use of these particles in a refractory, but rather teaches a lengthy synthesis process and later uses them as abrasives.

The difference between the instant claims and the teachings of the prior art lie in the fact that the particles of the composition as described above were not immediately made into a green part, but rather were used as particles.

The difference between these two inventions would be reconciled by combining the teachings of Rosenflanz with those of Raine. Raine teaches a process where the powders are first pressed at a high pressure and subsequently sintered (ie, fired, burned) at a condition known as "cone 14-15". If the particles of Rosenflanz's invention were pressed at a high pressure like those of Raine's invention a green part would be made, which would represent a species of the instantly claimed ranges. Alterations in

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Raine's process would have been obvious to one in the art, as it is common knowledge in the technology to alter the temperature and pressure of sintering based on the oxides being used. This would not have necessitated any extraneous testing and would have been well within the capabilities of one of ordinary skill in the art.

There would have been significant motivation to make a refractory body from the particles of Rosenflanz's invention, as Rosenflanz specifically discloses that alumina-zirconia and alumina-zirconia based ceramics are useful as refractories and thermal barriers (Column 1, Lines 22-28), due to their thermal stability

### ***Conclusion***

In retrospect, claims 16-29 are rejected, while claims 1-15 were previously withdrawn.

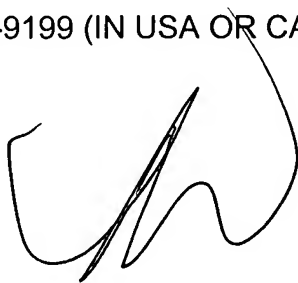
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Hoban whose telephone number is (571) 270-3585. The examiner can normally be reached on Monday - Friday from 7:30 AM to 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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VICKIE Y. KIM  
SUPERVISORY PATENT EXAMINER